

CLAIMS

1. An analytical pretreatment column characterized by being filled with at least an inorganic type filler comprising a double pore structure having both a through pore
5 with a number average diameter of not less than 0.5 micrometers to not higher than 25 micrometers, and a meso pore with a number average diameter of not less than 2 nm to not higher than 50 nm.
2. An analytical pretreatment column as set forth in claim 1, wherein the
10 percentage of the pore volume of the through pore which occupies the volume of the inorganic type filler is ranging from not less than 30% to not higher than 90%.
3. An analytical pretreatment column as set forth in claim 1, wherein the inorganic
type filler has a coating of an organic compound thereon.
- 15 4. An analytical pretreatment column as set forth in claim 1, wherein the inorganic type filler consists of a silica as a main component.
5. An analytical pretreatment column as set forth in claim 1, wherein the inorganic
20 type filler has a granular shape, a number average diameter of not less than 10 micrometers to not more than 1000 micrometers, and the specific surface area according to the BET method of not less than 50 m²/g.
6. A process for producing an inorganic type filler, comprising:
25 hydrolyzing and gelating alkoxysilane in a solution containing a template compound

to form a silica gel,
grinding the silica gel, and then treating the silica gel with a basic solution, or,
treating the silica gel with a basic solution, and then grinding the silica gel, and,
calcining the silica gel.

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7. A process for producing an inorganic type filler as set forth in claim 6 wherein the grinding the silica gel is performed by using a device having a porous plate with plural penetrating holes which squeezes the silica gel into the penetration holes from one surface of the plate to grind the silica gel.

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8. A process for producing an inorganic type filler as set forth in claim 6, wherein the template compound is any one of polyethylene oxide, poly oxy ethylene alkyl ether, and poly acrylic acid.

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9. An analytical pretreatment column as set forth in claim 1, wherein the inorganic type filler is one produced by the process as set forth in any one of claims 6 to 8.

10. A process for dispensing a dispense target substance, comprising:

flowing an analyzed sample containing a dispense target substance and a coexisting

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substance into the analytical pretreatment column as set forth in claim 1, thereby

making the dispense target substance be adsorbed to the inorganic type filler, and

flowing an eluting solvent into the analytical pretreatment column, thereby

debouching the dispense target substance from the analytical pretreatment column.

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11. A process for dispensing a dispense target substance, comprising:

flowing an analyzed sample containing a dispense target substance and a coexisting substance into the analytical pretreatment column as set forth in claim 1, thereby making the dispense target substance be adsorbed to the inorganic type filler and debouching the dispense target substance from the analytical pretreatment column.

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12. A process for dispensing a dispense target substance as set forth in claim 10 or 11, wherein the dispense target substance is one or more selected from the group consisting of dioxin, polychlorinated biphenyl, agricultural chemicals, endocrine disruptor, heavy metal, and protein.

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13. A process for purifying a sample, comprising:
flowing a sample containing a removal target substance and a coexisting substance into the analytical pretreatment column as set forth in claim 1, thereby removing the removal target substance from the sample.

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14. A process for recovering a recovery target substance, comprising:
flowing a sample containing a recovery target substance and a coexisting substance into the analytical pretreatment column as set forth in claim 1, thereby recovering the recovery target substance from the sample.

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